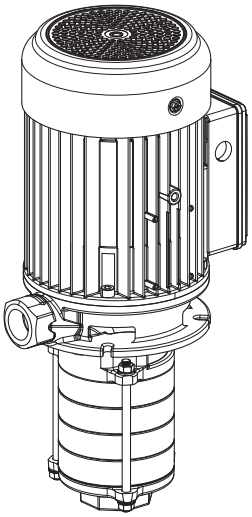
WALRUS PUMP

TPHK_L Series

Instruction Manual

Immersible Pump



IE3-IE4 Motor

Model : TPHK2T_L / TPHK4T_L

To ensure safe and proper use, please read this instruction before operation.

ISO 9001 Certified **WALRUS PUMP CO., LTD.** CE

TPHK_L Instruction Manual

Before installing your new system, please study all instructions carefully, as the warranty does not cover failures caused by incorrect installation and operation.

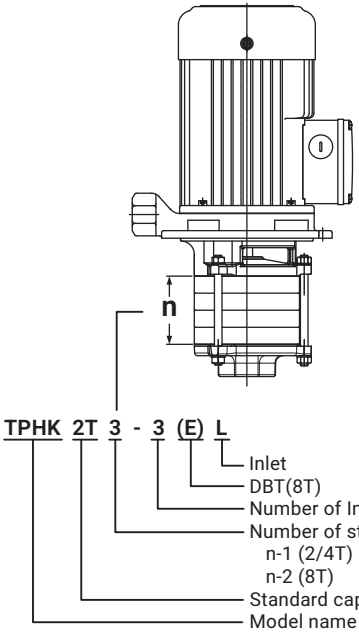
1. Application

1.1. The TPHK_L series is multi-stage centrifugal pump designed for industrial use, especially for machine tools.

1.2 The pump can not be used to transfer explosive liquids; such as gasoline, diesel oil or similar liquids. It is suitable to carry liquids such as water, coolant, low viscosity or other non-corrosive liquids.

2. Product Code Designation

The standard range of pumps includes complete impeller in chamber combinations. Upon request, a special length can be supplied by fitting empty intermediate chambers instead of standard chambers with impellers. The pump nameplate indicates the number of chambers and impellers fitted to the pump.



3. Operating Limits

1. Ambient Temperature: Max.+50°C
2. Liquid Temperature range: +0°C ~ +90°C
3. Enclosure Class: IP54
4. Operating pressure: Max. 10kg/cm²
5. Submerged depth: Min. the top of second stage
6. Particle Size: Ø2mm

(Excluding needle-shaped, strip-shaped and spiral-shaped foreign objects.)

7. Liquids(maximum content of solid particles in suspension 50g/m³)
8. Kinematical Viscosity: 32 cst (mm²/s)
9. Stop and Restarts:

Output power[kW]	times/hour
Below 3000	250
3000~5000	100

4. Installation

The pump has hot surface on the motor. It must be installed so that persons cannot accidentally come into contact the hot surface.

4.1. Submerged Depth

To avoid dry running and damage the pump during operation, the minimum liquid level should cover the top of the second stage when pump switched on as shown in Fig 1. In addition, the bottom of the pump suction inlet should install filter and must be at least 40 mm above the bottom of the tank.

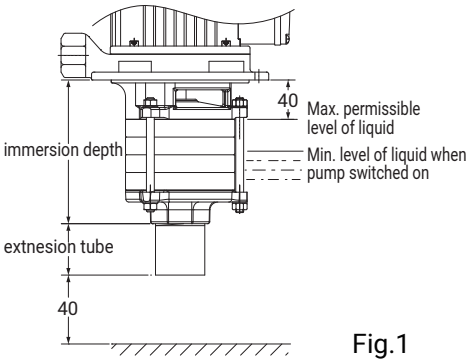


Fig.1

4.2 Attention water level when the pump turned on.

4.3 If the water level is too far from the pump inlet during operation, the pump performance will be affected.

4.4 It suggest installing swing check valve at the inlet pipe.

4.5 The length of inlet pipe should not exceed 800mm.

5. Electrical Connection



5.1 The electrical connection should be carried out in accordance with local regulations. Never make any connections unless the electricity supply has been switched off.



5.2. The electrical hazard warning mark is placed outside the connection box. Be careful.

5.3. Electrical data (voltage and frequency) are shown on the pump nameplate. Verify if these data match your electricity supply. A circuit breaker should be installed and the grounding be properly connected for your safety.

5.4. Make electrical connection in accordance with connecting diagram located inside the connection box. The motor current must be within the rated amps range indicated on nameplate. Three phase motor requires a magnetic starter for safety.

5.5. For three phase motors, please check the correct direction of rotation of the pump on the motor fan cover. When seen from motor fan cover end, the pump should rotate clockwise. You can reverse the direction of rotation by interchanging any two of the incoming supply wires.

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6. Start-up

Before starting the pump, make sure the following:

6.1. For three phase motors, verify if the rotating direction is correct. It should be clockwise viewing from the motor fan cover end.

6.2. All piping joints are completely tight. Leakage in piping may cause the pump hydraulic loss.

6.3. The pump is filled with liquid.

7. Operation and Maintenance



It is dangerous to operate the pump against a closed discharge outlet because it will cause extremely high liquid flow temperature and damage the pump in a few minutes.

7.1. Lubrication

The mechanical seal and shaft sleeves are lubricated by the pumped liquid.

7.2. Periodic checks

The following checks should be carried out periodically to ensure the normal operation.

7.2.1. Check the quantity of liquid and operating pressure.

7.2.2. Check there are no leaks on piping joints.

7.2.3. Check the tripping of the motor starter.

7.2.4. Check that all controls are functioned normally.

7.3. When pump is not in use for a period, it should be drained. For start up after long time inactivity please check if the impeller and mechanical seal are free. If they are locked up by sand, rust or something else please clean them up.

7.4. The pump must not be used to transfer explosive liquids. In systems with hot liquids (over 60°C), extra caution should be exercised to prevent from personal injury.

7.5. The pump should not be used to transfer toxic or contaminated liquids. Please carefully follow all instructions in the manual as Walrus may refuse to accept the contaminated pump for servicing.

8. Noise Level

Motor	dB(A)
TPHK2T3-1L	<70
TPHK2T3-2L	<70
TPHK2T3-3L	<70
TPHK2T4-4L	<70
TPHK2T5-5L	<70
TPHK2T6-6L	<70
TPHK2T7-7L	<70

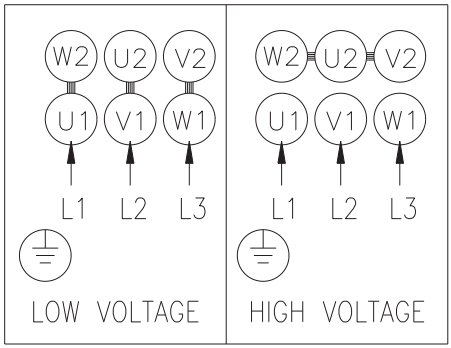
Motor	dB(A)
TPHK4T2-1L	<70
TPHK4T2-2L	<70
TPHK4T3-3L	<70
TPHK4T4-4L	<70
TPHK4T5-5L	<70
TPHK4T6-6L	<70

Motor	dB(A)
TPHK8T2-2EL	<70
TPHK8T3-3EL	76
TPHK8T4-4EL	76
TPHK8T5-5EL	76
TPHK8T6-6EL	76

Note: Above drawing shows the noise level while pump operated with closed outlet.

The tolerance of noise level is dB(A).

9. Wiring Diagram



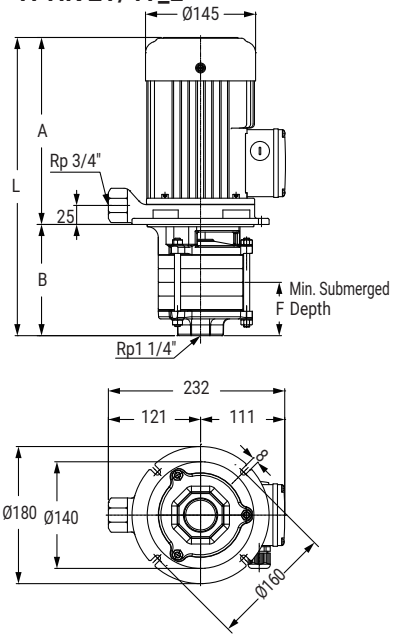
10. Fault Finding

Make sure electricity supply has been switched off before trouble shooting

Fault	Cause	Remedy
1. Motor does not run start.	Supply failure.	Connect the electricity supply.
	Fuses are blown.	Replace fuses.
	Motor starter overload has tripped out.	Reactivate the motor protection.
	Thermal protection has tripped out.	Reactivate the thermal protection.
	Main contacts in motor starter are not making contact or the coil is faulty.	Replace contacts or magnetic coil.
	Control circuit is defective.	Repair the control circuit.
	Motor is defective.	Replace the motor.
2. Motor starter overload trips out immedia tely when supply is switched on.	One fuse / automatic circuit breaker is blown.	Cut in the fuse.
	Contacts in motor starter overload are faulty.	Replace motor starter contacts.
	Cable connection is loose or faulty.	Fasten or replace the cable connection.
	Motor winding is defective.	Replace the motor.
	Pump mechanically blocked.	Remove the mechanical blocking of the pump.
	Overload setting is too low.	Set the motor starter correctly.
	One fuse / automatic circuit breaker is blown.	Cut in the fuse.
3. Motor starter overload trips out occasionally.	Overload setting is too low.	Set the motor starter correctly.
	Low voltage at peak times.	Check the electricity supply.
4. Motor starter has not tripped out but the pump does not run.	Supply failure.	Connect the electricity supply.
	Fuses are blown.	Replace fuses.
	Thermal protection has tripped out.	Reactivate the thermal protection.
	Main contacts in motor starter are not making contact or the coil is faulty.	Replace contacts or magnetic coil.
5. Pump runs but gives no liquid or pump capacity is not constant.	Liquid level in tank too low.	Increase the liquid level.
	Pump draws in air.	Check the suction conditions.
6. Leakage in shaft seal.	Shaft seal is defective.	Replace the shaft seal.
7. Noise.	Cavitation occurs in the pump.	Check the suction conditions.
	Pump does not rotate freely (frictional resistance) because of incorrect pump shaft position.	Adjust the pump shaft.

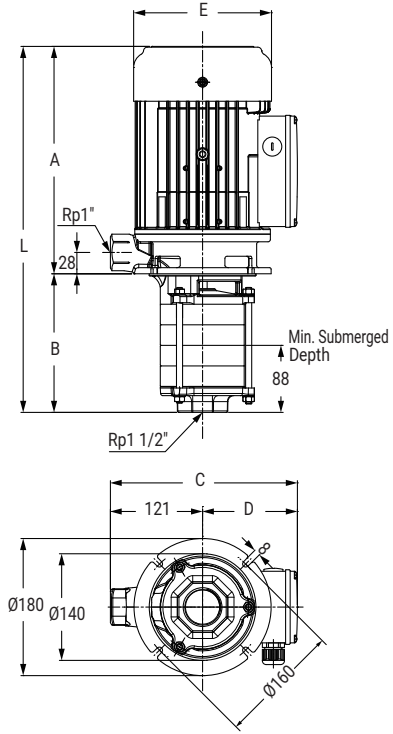
11. Dimensions

TPHK 2T/4T_L



Model	Dimensions(mm)				N.W (kg)
	A	B	L	F	
TPHK 2T3 -1L	205	146	351	70	11.3
TPHK 2T3 -2L	205	146	351	70	11.5
TPHK 2T3 -3L	205	146	351	70	11.6
TPHK 2T4 -4L	245	164	409	70	11.9
TPHK 2T5 -5L	253	182	435	70	13.1
TPHK 2T6 -6L	253	200	453	70	13.9
TPHK 2T7 -7L	284	218	502	70	15.5
TPHK 4T2 -1L	205	155	360	88	11.2
TPHK 4T2 -2L	245	155	400	88	11.4
TPHK 4T3 -3L	245	182	427	88	12.1
TPHK 4T4 -4L	284	209	493	88	13.7
TPHK 4T5 -5L	309	236	545	88	14.3
TPHK 4T6 -6L	309	263	572	88	15.0

TPHK 8T_EL



Model	Dimensions(mm)						N.W (kg)
	A	B	L	C	D	E	
TPHK 8T2 -2EL	284	182	466	232	111	Ø145	17.7
TPHK 8T3 -3EL	321	209	530	244	123	Ø181	24.7
TPHK 8T4 -4EL	321	236	557	244	123	Ø181	25.7
TPHK 8T5 -5EL	346	263	609	244	123	Ø181	28.7
TPHK 8T6 -6EL	366	290	656	244	123	Ø181	31.7

Limited Warranty

Products manufactured by Walrus Pumps Co (Walrus) are warranted to the first user only to be free of defects in material and quality for 12 months from the date of installation but no more than 24 months from the date of shipment. Walrus' liability under this Warranty shall be limited to repairing or replacing at our election, without charge, FOB Walrus' distribution center or authorized service agent. Walrus will not be liable for any cost of removal, installation, transportation, or any other charges that may arise in connection with the warranty claim.

The warranty period commences on the original purchase of the equipment. Proof of purchase and installation date, failure date, and supporting installation data must be provided when claiming repairs under warranty.

This Warranty is subject to due compliance by the original purchaser with all directions and conditions set out in the installation and operating instructions. Failure to comply with these instructions, damage or breakdown caused by fair wear and tear, negligence, misuse, incorrect installation, inappropriate chemicals or additives in the water, inadequate protection against freezing, rain or other adverse weather conditions, corrosive or abrasive water, lightning or high voltage spikes or through unauthorized persons attempting repairs are not covered under Warranty.

Walrus will not be liable for any incidental or consequential damages, losses, or expenses, arising from installation, use, or other causes. There are no express or implied warranties, including merchantability or fitness for a particular purpose, extending beyond those described or referred to above.

This warranty sets forth specific legal rights and obligations. Certain states do not permit the exclusion or limitation of incidental or consequential damages or the placing of restrictions on the duration of an implied warranty. Therefore, the rules or exclusions herein may not apply. However, additional rights may exist, varying from state to state.

The above Warranty supersedes all previous publications.

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